



Fuel Diversity for California?

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By Michael Eaves

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Concerns-Petroleum Demand

- ▶ 2003 report – 26 Billion gal/yr in 2025 without changes
- ▶ 2005 report – 20 Billion gal/yr in 2025 without changes
- ▶ BUT 2005 report includes 30% improvement in CAFÉ not 100% envisioned in 2004
- ▶ Hydrogen FCV penetration now moved out beyond 2025 so fuel displacement reported in 2003 report gone



Concerns-Petroleum Demand

- ▶ VMT in 2025 up 47-48%
- ▶ Vehicles in 2025 up 40%
- ▶ Still have 10% Ethanol in gasoline
- ▶ Have 20% GTL scenario for LD diesel or diesel blends (vs. 30% in 2003)
- ▶ Use high price scenario as rationale why demand drops?? – VMT says no
- ▶ Little or no continuity or linkage to 2003 report



Concerns-Petroleum Demand

- ▶ Hybrids have greater presence – but hybrids don't achieve 100% CAFÉ gains proposed in 2003
- ▶ Plug-in hybrids gain credibility in report even though OEMs say not interested
 - ▶ Fundamental issues with developing full functionality with all electric 20-60 mile range
- ▶ Fuel economy improvements for diesel even though will be lucky to regain efficiency losses of complying with 2010 emissions
- ▶ Alt fuels for LD (propane, natural gas, E85) marginalized



Concerns-Petroleum Demand

- ▶ Solutions??
 - ▶ GTL for LD diesels
 - ▶ GTL for diesel blends
 - ▶ Biodiesel for diesel blends
 - ▶ Gasoline hybrids
 - ▶ Increase in fuel economy for gasoline vehicles
 - ▶ Ethanol blends for gasoline
- ▶ In short no real diversification beyond Gasoline and Diesel
- ▶ Far cry beyond options in AB2076 report



Realities

- ▶ Little or no interest of oil companies using GTL or Ethanol as “extenders” if production of those fuels not owned by oil companies
- ▶ Capitalization to displace their own product is not likely
- ▶ Petroleum companies would be glad if they could eliminate oxygenate requirement
- ▶ “Extenders” – costs paid to others – detract from oil company revenue/profits just like demand reduction
- ▶ Oil companies exercise market power by doing nothing



Realities

- ▶ Oil companies don't want to create competition for their own product at their own stations
- ▶ All alternative fuels forced to develop independent infrastructure without government policies to promote diversification
- ▶ Natural gas industry has developed a business model that is independent of petroleum companies



Realities

- ▶ Auto manufacturers want to produce gasoline vehicles
- ▶ GM manufactures 60 different models but only one natural gas version of one model
- ▶ Ford and Chrysler produce no natural gas vehicles – but do manufacture NGVs in countries with aggressive energy/fuel diversification policies



Process to Achieve Goals

- ▶ Codify goals in state law
 - ▶ Petroleum reduction and alt fuel penetration
- ▶ Recognize what fuels/approaches can get you what gains
- ▶ Develop long term state policies
- ▶ Provide adequate incentives for market transformation



Policies

- ▶ Can change status quo
- ▶ Don't necessarily have to include mandates
- ▶ Societal change does cost money and someone will pay
- ▶ Who pays and how is the question



Codify Goals

- ▶ **SB 757 (Kehoe) – an example**
 - ▶ Petroleum reduction
 - ▶ Alt fuel expansion
 - ▶ No mandates
 - ▶ Require ARB to take fuel diversity into account with regulations
 - ▶ Even consider alt fuel fleet rules



“Moyer” Type Fund

- ▶ This approach dismissed by staff as undefined therefore unworkable
- ▶ Renewable Portfolio Standard defined state need and developed public purpose surcharge to address
- ▶ Nearly a billion dollars to change status quo
- ▶ It is working

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California Market Penetration

- ▶ 30,000 total NGVs
- ▶ 5,000 HD vehicles
 - ▶ Transit, Refuse, Trucks, and School buses
- ▶ 25,000 LD vehicles
- ▶ Displacing 70-75 million gallons/yr of petroleum (CNG and LNG)



Limited NGV Products

- ▶ Variable/changing/NO policies create great risk for manufacturers
- ▶ Uncertainty in public policy creates reluctance for manufacturers to expand product lines
- ▶ Unified, long-term policies will expand vehicle/engine offerings



Honda Scenario

- ▶ Plan includes expanding models as sales increase
- ▶ Honda with 1-2 models would mean 100,000 vehicles on road in 20 years
- ▶ Take 4-5 manufacturers reengaged with NGVs to equal 500,000 vehicles in 2025
- ▶ Good policies would get more manufacturers engaged

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California Infrastructure

- ▶ 365 CNG stations and 29 LNG stations in California (180 reported in report)
- ▶ 40% stations public access
- ▶ No stations are joint venture stations with petroleum companies



Look Familiar?

- ▶ **EPACT ('92)**
 - ▶ Energy security/diversity
 - ▶ Petroleum displacement
 - ▶ 10% by 2000
 - ▶ 30% by 2010
 - ▶ Flawed design (LD focus)
 - ▶ Monitoring but no enforcement
- ▶ **AB2076 goals**
- ▶ **Question: 12 years from now, will California have an energy policy as ineffective as EPACT???**



Recommendations

- ▶ Codify ALL AB2076 goals in state law
 - ▶ Petroleum reduction
 - ▶ Alt Fuel penetration
- ▶ Decide who at state level would administer an alt fuels policy
- ▶ Develop long range policies for California
- ▶ Develop incentives for market transformation (e.g. “Moyer” type program for non-petroleum)
- ▶ State supported R&D for new generations of products/technologies

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Recommendations

- ▶ Revise all reports to bring forward all assumption from AB2076/IEPR 2003 and note what assumptions added/deleted/changed and why
- ▶ Need more thinking on how to diversify beyond gasoline and diesel
- ▶ Be more creative in developing options to make future happen